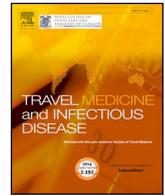




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## The COVID-19 outbreak and implications for the Tokyo 2020 Summer Olympic Games



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In 2020 the world witnessed the emergence of a new, viral, zoonotic pathogen (SARS-CoV2) causing an outbreak of Coronavirus disease 2019 (COVID-19) [1] that has led the World Health Organization (WHO) to declare a Public Health Emergency of International Concern (PHEIC) [2–4]. Originating in Wuhan, Hubei province, China, the epidemic has extended over all the provinces of the country, but also affecting bordering countries, such as Vietnam, Russia, Nepal [5], and other closely connected regions, such as Thailand, Singapore, Malaysia, the Philippines, South Korea, and Japan, among others in Asia and abroad [6–8].

As time goes by, global concern and the number of cumulated cases has increased [2–4,9,10]. Although most cases have occurred in mainland China (<https://bit.ly/32974QM>), a growing number has been reported in other territories, with most of these in Japan. This situation is disrupting, as expected, the health and economy of China and other countries [11,12]. For example, in Shanghai, China, the Chinese Grand Prix has been postponed because of the outbreak of COVID-19, as the Formula One and the sport's governing body, the FIA, recently declared. The race was due to take place in Shanghai on April 19, 2020 [13].

Even in other countries, such as Malaysia, major medical conferences have been postponed or even canceled. The main scientific event of the International Society for Infectious Diseases, the International Congress on Infectious Diseases, to be held in Kuala Lumpur, Malaysia, on February 20–23, 2020, has been rescheduled to September 10–13, 2020 [14].

In this context, media have highlighted the COVID-19 concerns in the Asia region, particularly in China, but now also the potential impact of COVID-19 on Japan, including the upcoming 2020 Summer Olympic Games [15], to be held from 24 July to August 9, 2020 in Tokyo [16]. Additionally, the associated Paralympics will be held from 25 August to September 6, 2020. Right now, dates seem to be on the distant horizon (5 months), but the scenario is increasingly unpredictable. Although not cancelled, only a small number of elite runners are allowed to run in the Tokyo marathon on March 1, 2020.

So far (as of February 27, 2020), Japan is the third most affected country after China and South Korea, if all the cases are considered. That includes more than 189 cases onshore, but also more than 705

onboard the Diamond Princess cruise ship, docked in Yokohama (Fig. 1), near to Tokyo (<https://bit.ly/32974QM>), including four deaths. Because multiple chains of transmission have been seen, full disembarkation of guests have been operated from February 19, while requesting exposed individuals to voluntarily restrict movement and report any symptoms for 14 days since disembarkation. Onshore, cases in Tokyo and surrounding areas have been confirmed, including first death from COVID-19 in Japan, in an 80-years older woman in the Kanagawa Prefecture, near Tokyo [17].

The games should be the largest mass gathering sport event in 2020, with the participation of 204 countries and regions at the Olympics and 164 at the Paralympics [18–20]. Tokyo is expecting to receive approximately 20 million visitors (non-residents), to be attended by 70,000 volunteers of the games and 8000 for the city. At the games, there will be the participation of 11,090 Olympic athletes and 4400 Paralympic athletes [15]. During the games, there are 14 million food dishes expected to be delivered to participants. All these conditions, beyond the COVID-19, represent alone a huge major challenge for organizers, particularly from the point of view of health security [15,19,20].

Imported cases of COVID-19 have arrived in Japan quickly after the beginning of the epidemic in Wuhan, China [11,12]. That was predictable, in view of the close proximity as only 1300 miles separate Beijing and Tokyo Haneda, with four direct route flights daily, and five to Tokyo Narita; and 15 one-stop routes from Wuhan to Tokyo Haneda and four direct route flights to Tokyo Narita [21].

On January 15, 2020, the Ministry of Health, Labor, and Welfare of Japan reported an imported case from Wuhan, Hubei Province, China. Japan reported on January 28, 2020, the first autochthonous case in a driver who transported Chinese tourists arriving from Wuhan.

The Japanese government repatriated about 650 Japanese citizens residing in Wuhan or travelers on charter flights [11]. Local health authorities in Japan have been conducting contact tracing activities, active surveillance, and other epidemiological investigations. In particular, the surveillance of severe acute respiratory diseases.

Since January 7, 2020, the quarantine and detection measures of travelers from the city of Wuhan, have been improved at the points of

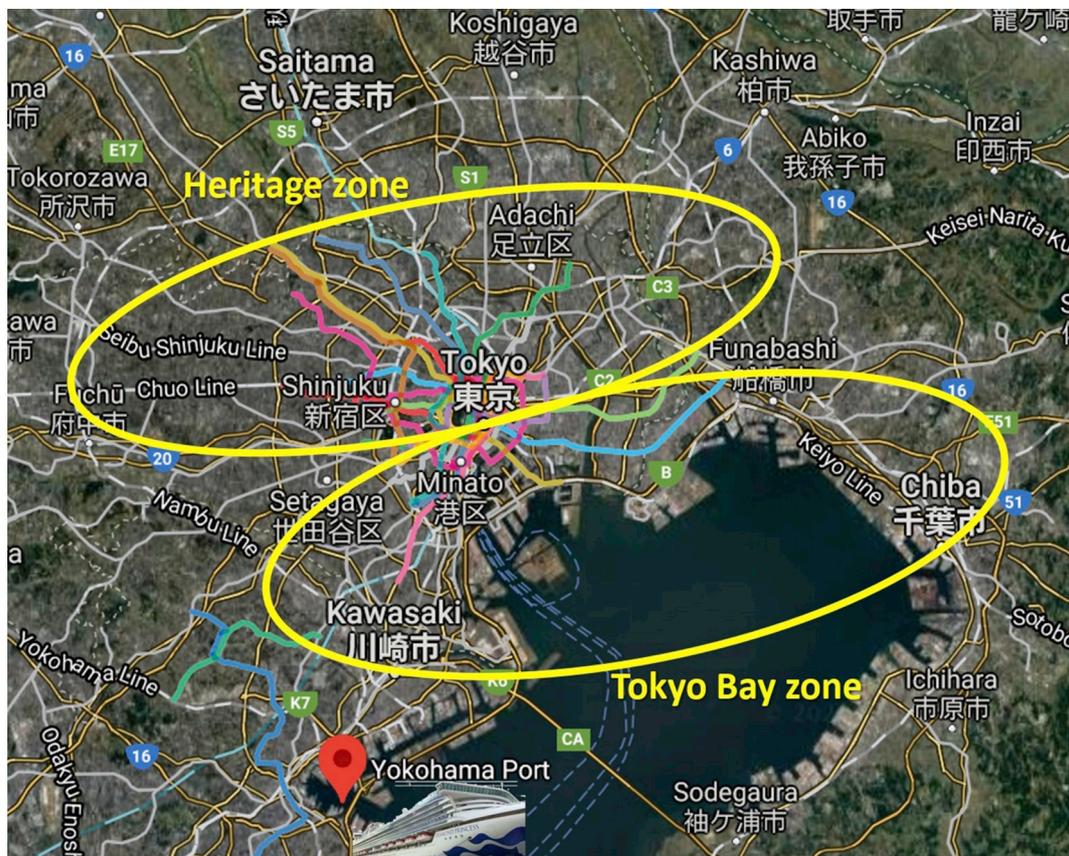


Fig. 1. Map showing Tokyo and their zones for the venues of the Olympic and Paralympic Games (Heritage and Tokyo Bay zones), and the relative position of the Yokohama port, where the cruise ship Diamond Princess is docked.

entry. On January 16, the National Institute of Infectious Diseases standardized the real-time RT-PCR test for SARS-CoV2. Additionally, the health authorities reviewed the risk assessment and clinical case definition for direct contacts. Communications to the public regarding risks have been improved. A telephone hotline has been opened between the different ministries in the Government and multiple other related activities are undergoing.

Current recommendations [2,3], for people traveling to Japan, may undoubtedly change rapidly, in any direction, while the country has been aiming to contain the transmission as much as possible. In China, most of the professional sports leagues have been canceled their seasons, especially football and athletic disciplines, ski, hockey, among many others, but even qualifying competitions for the Olympic Games.

Even more, the areas where the games will be held, 33 competition venues in Tokyo, include prefectures where COVID-19, have been reported already. For example, these include the Yokohama Stadium, for baseball and softball, as well the International Stadium Yokohama, for football. At Yokohama port, is located the cruise ship, Diamond Princess, with more than 705 confirmed cases of SARS-CoV-2 (Fig. 1).

Although health authorities are assessing the situation, also the International Olympic Committee (IOC), including the Tokyo Organizing Committee of the Olympic and Paralympic Games, there is a need for close observation on the situation to consider significant decisions regarding the celebration of this mass gathering event. In two months, new evidence will be available, and reassessment of the situation will be sure and necessary according to the determination of the risk for sports players as well as for the general population and organizers of the central mass gathering sport event of the year 2020.

To date, the IOC coordinating commission confirmed that the location of the Games would not be modified, nor will any contingency plan for the competition be carried out. The IOC continues to work closely with the World Health Organization (WHO) and persists to

analyze the situation of Chinese athletes traveling to qualifying competitions for Tokyo 2020.

WHO assesses the best way to contain this outbreak worldwide; intensifies its support for preparedness and response, especially in vulnerable countries and regions. It works to ensure the rapid development of vaccines, diagnostic means, antiviral drugs, and other treatments, and that low and middle-income country have access to them and also seeks a comprehensive risk communication strategy and promotes research and relative scientific advances to this new coronavirus [22].

Mass meetings, such as the Olympic Games, require considerable preparation and responsiveness by the host country. Globally, the WHO has a strategic preparedness and response plan for the coronavirus [23]. It is too early to realistically discuss the future course of epidemic. Scientists do not believe that a related COVID-19 epidemic will **spread rapidly and intensively** in Japan, but the scientific community around the world must be prepared to diagnose early and provide the necessary epidemiological data so that prevention measures and appropriate decisions are made regarding the Tokyo 2020 Olympic and Paralympic Games.

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Approval was not required.

#### CRediT authorship contribution statement

**Viviana Gallego:** Conceptualization, Writing - original draft.

**Hiroshi Nishiura:** Writing - review & editing. **Ranjit Sah:** Writing - review & editing. **Alfonso J. Rodriguez-Morales:** Writing - original draft, Writing - review & editing.

#### Declaration of competing interest

All authors report no potential conflicts. All authors have submitted the Form for Disclosure of Potential.

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#### References

- [1] Rodríguez-Morales AJ, Bonilla-Aldana DK, Balbin-Ramon GJ, Paniz-Mondolfi A, Rabaan A, Sah R, et al. History is repeating itself, a probable zoonotic spillover as a cause of an epidemic: the case of 2019 novel Coronavirus. *Infez Med* 2020;28:3–5.
- [2] Rodríguez-Morales AJ, MacGregor K, Kanagarajah S, Patel D, Schlagenhaut P. Going global – travel and the 2019 novel coronavirus. *Trav Med Infect Dis* 2020:101578.
- [3] Biscayart C, Angeleri P, Lloveras S, Chaves T, Schlagenhaut P, Rodríguez-Morales AJ. The next big threat to global health? 2019 novel coronavirus (2019-nCoV): what advice can we give to travellers? - interim recommendations January 2020, from the Latin-American society for Travel Medicine (SLAMVI). *Trav Med Infect Dis* 2020:101567.
- [4] Millan-Oñate J, Rodríguez-Morales AJ, Camacho-Moreno G, Mendoza-Ramírez H, Rodríguez-Sabogal IA, Álvarez-Moreno C. A new emerging zoonotic virus of concern: the 2019 novel Coronavirus (COVID-19). *Infectio* 2020;24(3). <https://doi.org/10.22354/in.v24i3.848>.
- [5] Bastola A, Sah R, Rodríguez-Morales AJ, Lal BK, Jha R, Ojha HC, et al. The first 2019 novel coronavirus case in Nepal. *Lancet Infect Dis* 2020;20(3):279–80. [https://doi.org/10.1016/S1473-3099\(20\)30067-0](https://doi.org/10.1016/S1473-3099(20)30067-0).
- [6] Holshue ML, DeBolt C, Lindquist S, Lofy KH, Wiesman J, Bruce H, et al. First case of 2019 novel coronavirus in the United States. *N Engl J Med* 2020. <https://doi.org/10.1056/NEJMoa2001191>.
- [7] Silverstein WK, Stroud L, Cleghorn GE, Leis JA. First imported case of 2019 novel coronavirus in Canada, presenting as mild pneumonia. *Lancet* 2020. [https://doi.org/10.1016/S0140-6736\(20\)30370-6](https://doi.org/10.1016/S0140-6736(20)30370-6).
- [8] Pongpirul WA, Pongpirul K, Ratnarathorn AC, Prasithsirikul W. Journey of a Thai taxi driver and novel coronavirus. *N Engl J Med* 2020. <https://doi.org/10.1056/NEJMc2001621>.
- [9] Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. *Lancet* 2020;395(10223):470–3. [https://doi.org/10.1016/S0140-6736\(20\)30185-9](https://doi.org/10.1016/S0140-6736(20)30185-9).
- [10] Hui DS, IA E, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health - the latest 2019 novel coronavirus outbreak in Wuhan, China. *Int J Infect Dis* 2020;91:264–6.
- [11] Nishiura H, Kobayashi T, Yang Y, Hayashi K, Miyama T, Kinoshita R, et al. The rate of underascertainment of novel coronavirus (2019-nCoV) infection: estimation using Japanese passengers data on evacuation flights. *J Clin Med* 2020;9.
- [12] Shigemura J, Ursano RJ, Morganstein JC, Kurosawa M, Benedek DM. Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: mental health consequences and target populations. *Psychiatry Clin Neurosci* 2020. <https://doi.org/10.1111/pcn.12988>.
- [13] Formula 1. Chinese Grand Prix postponed due to coronavirus outbreak. <https://www.formula1.com/en/latest/article.chinese-grand-prix-postponed-due-to-novel-coronavirus-outbreak.3g2y5Ngyrk1MbNxQB9hj4s.html>. 2020.
- [14] International Society for Infectious Diseases. 19th ICID postponed until september 10-13. <https://isid.org/19th-icid-postponed/>. 2020; 2020.
- [15] The Tokyo Organising Committee of the Olympic, Paralympic Games Tokyo. Summer olympic games. <https://tokyo2020.org/en/>. 2020; 2020.
- [16] Ingle S. IOC insists Tokyo Olympics will go ahead despite coronavirus. <https://www.theguardian.com/sport/2020/feb/14/ioc-insists-tokyo-olympics-will-go-ahead-despite-coronavirus>. 2020.
- [17] Princess Cruise Lines. Voluntary guest disembarkation plan and additional cases. [https://www.princess.com/news/notices\\_and\\_advisories/notices/diamond-princess-update.html](https://www.princess.com/news/notices_and_advisories/notices/diamond-princess-update.html). 2020.
- [18] Ishikawa H, Shimogawara R. Risk assessment of dengue autochthonous infections in Tokyo during summer, especially in the period of the 2020 olympic games. *Jpn J Infect Dis* 2019;72:399–406.
- [19] Nakamura S, Wada K, Yanagisawa N, Smith DR. Health risks and precautions for visitors to the Tokyo 2020 olympic and paralympic games. *Trav Med Infect Dis* 2018;22:3–7.
- [20] Yanagisawa N, Wada K, Spengler JD, Sanchez-Pina R. Health preparedness plan for dengue detection during the 2020 summer Olympic and Paralympic games in Tokyo. *PLoS Negl Trop Dis* 2018;12:e0006755.
- [21] Flight Connections. Flight connections. <https://www.flightconnections.com/>. 2020.
- [22] World Health Organization. Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\);2020](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov);2020).
- [23] World Health Organization. Managing health risks during mass gatherings. <https://www.who.int/activities/managing-health-risks-during-mass-gatherings>. 2020.

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